

Figure 1

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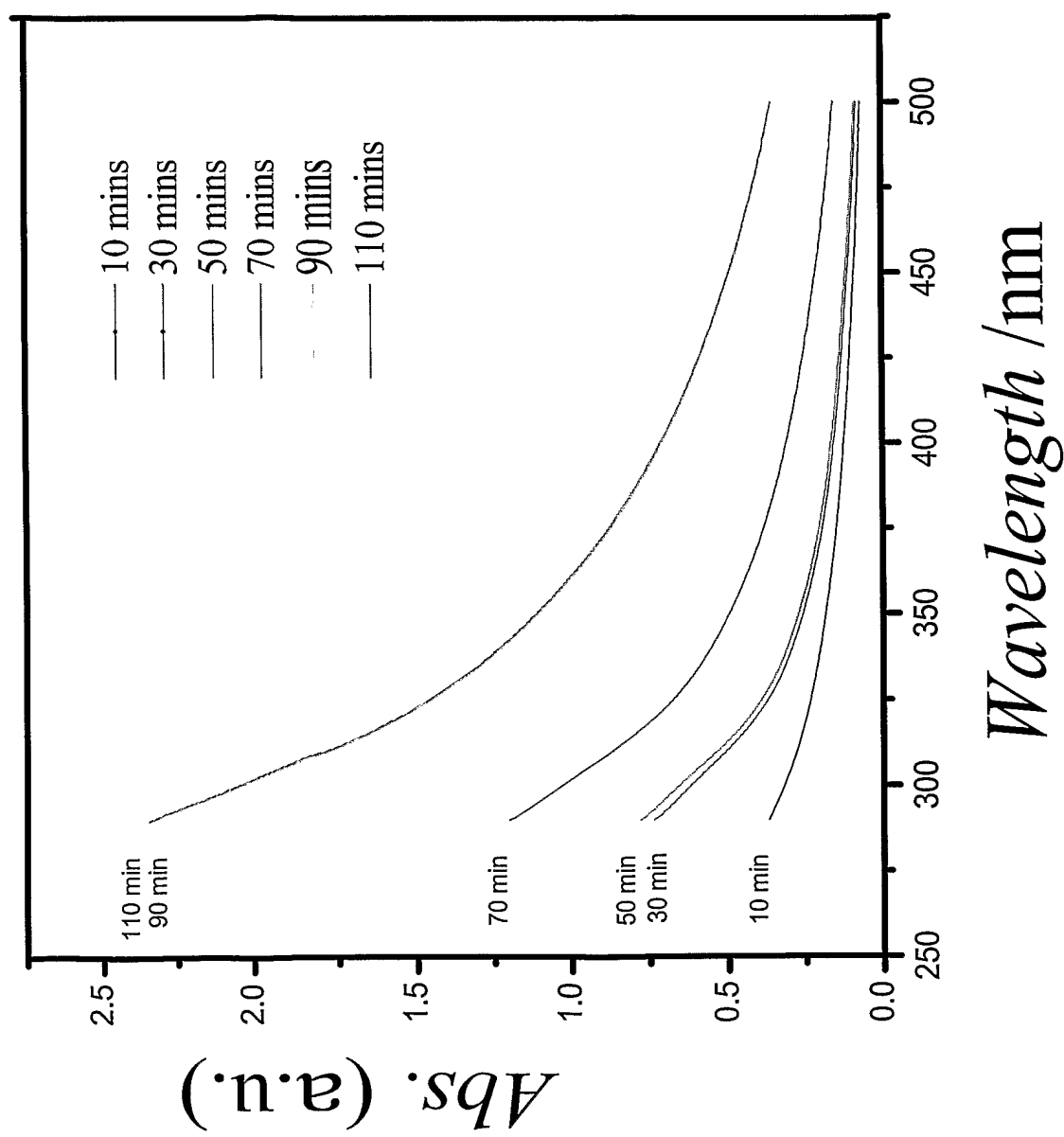


Figure 2

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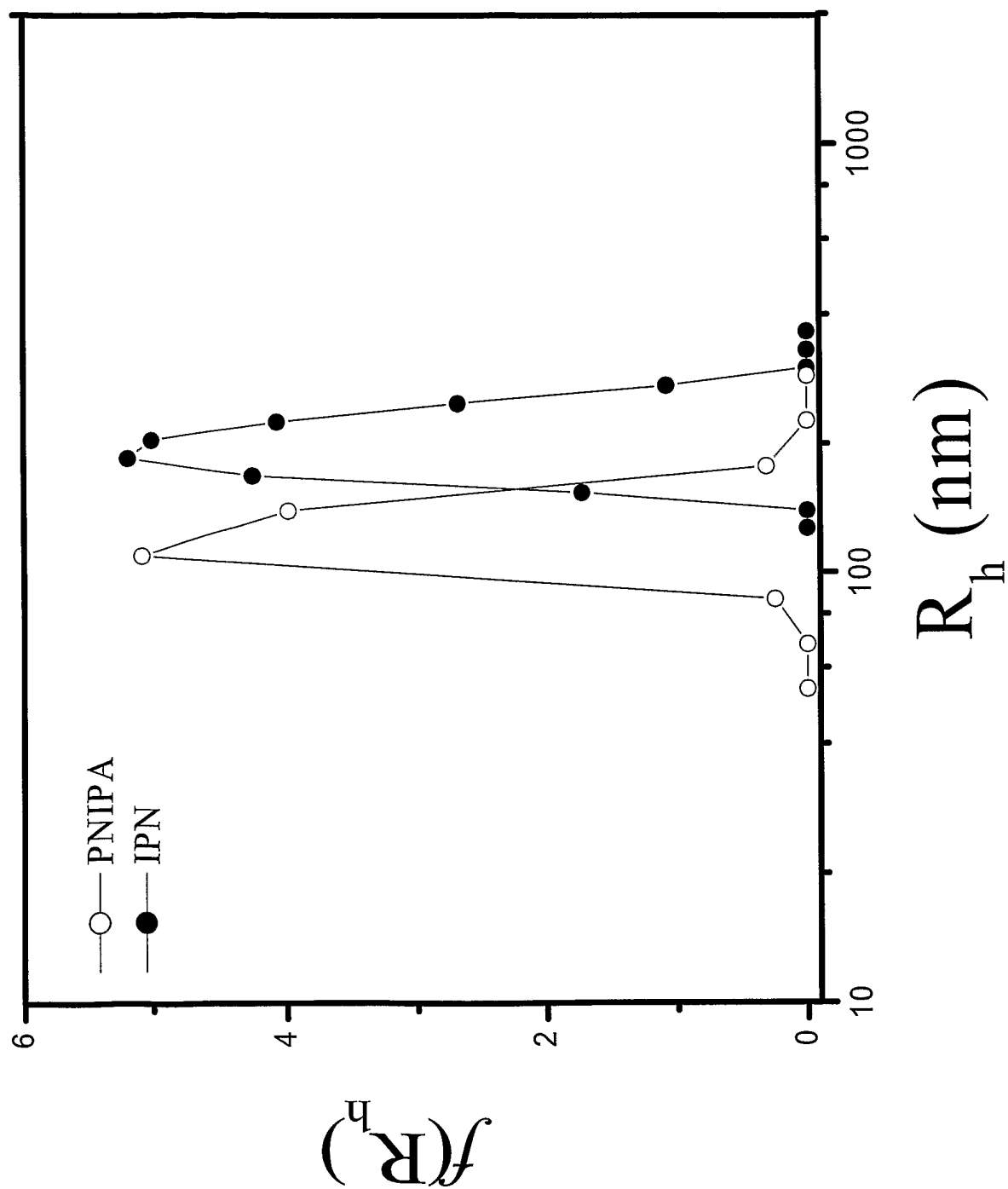


Figure 3

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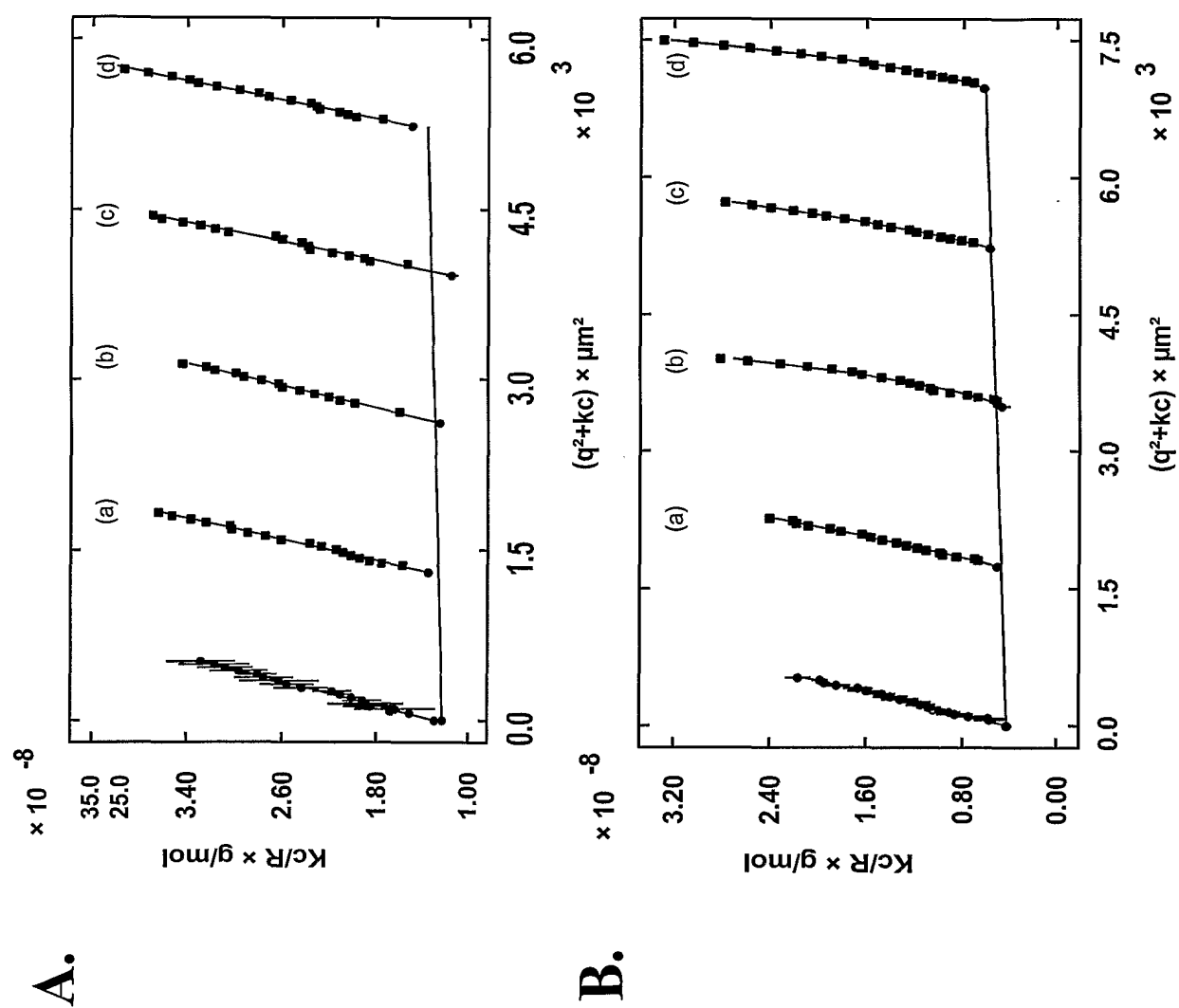


Figure 4

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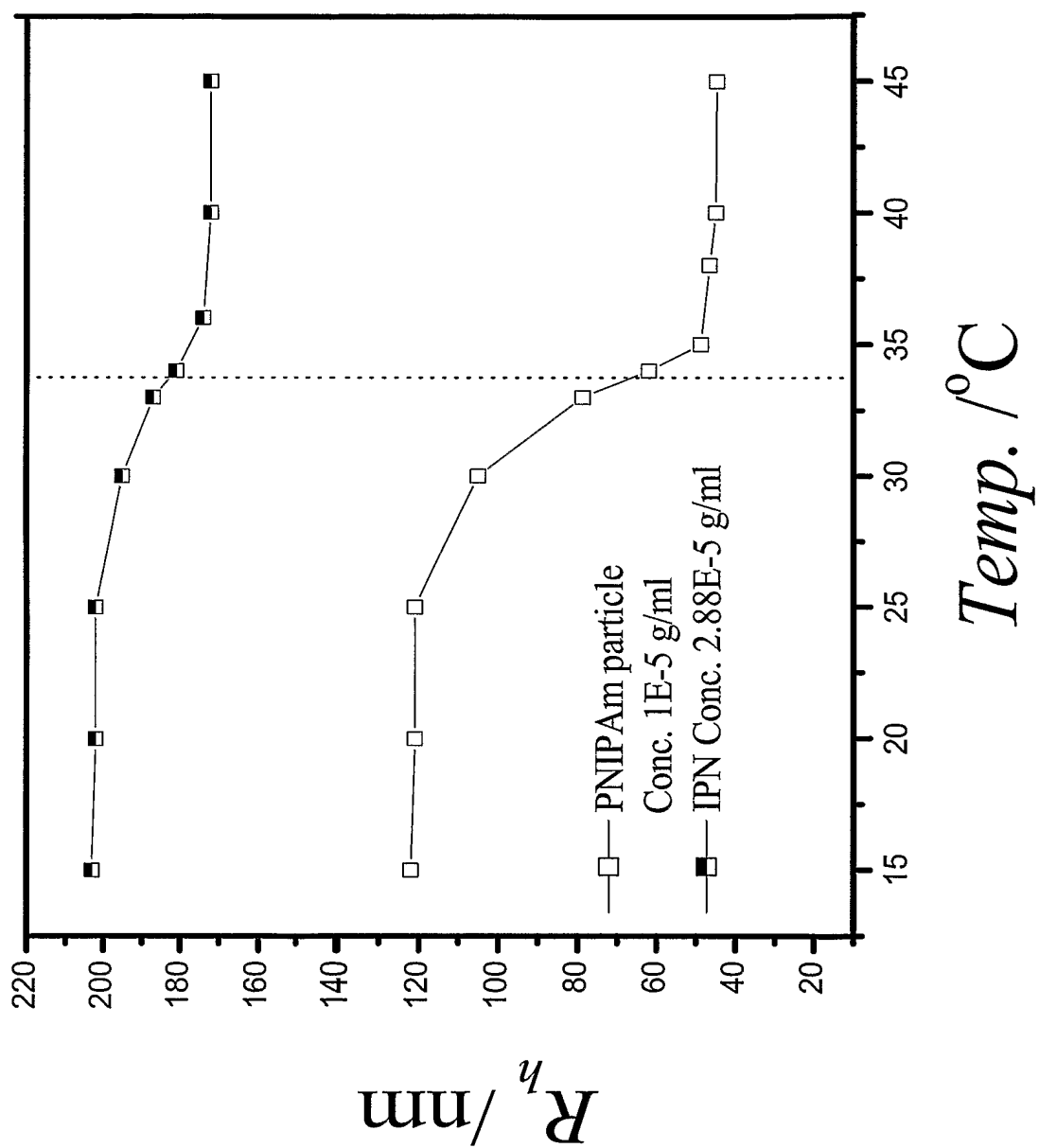


Figure 5

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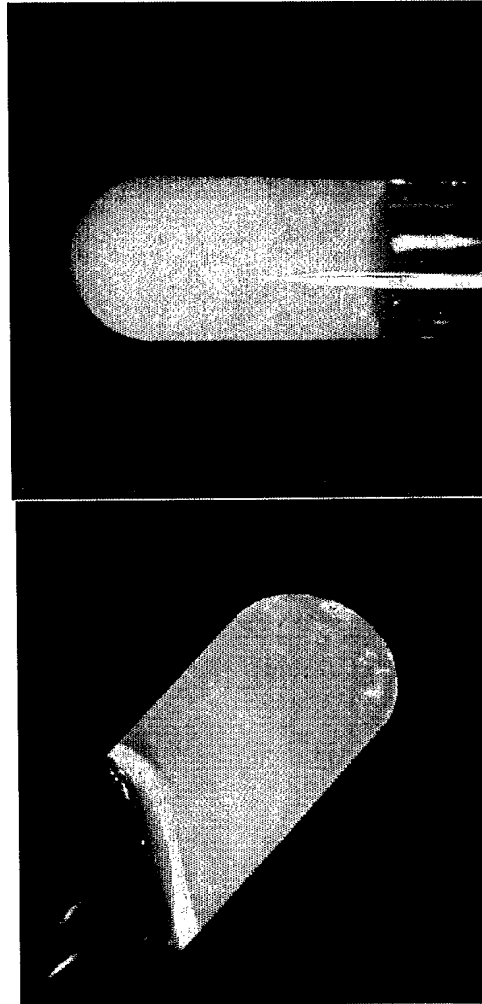


Figure 6

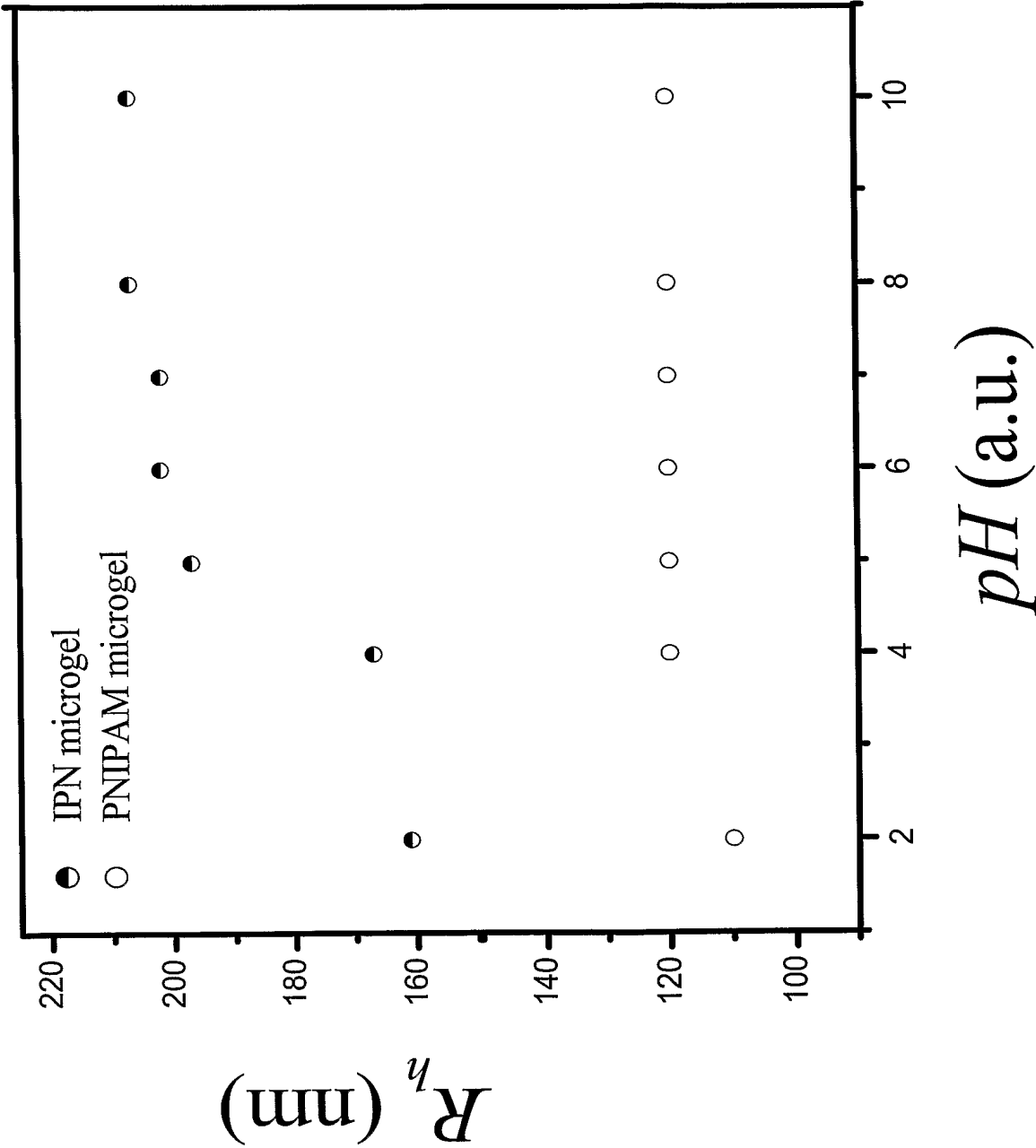


Figure 7

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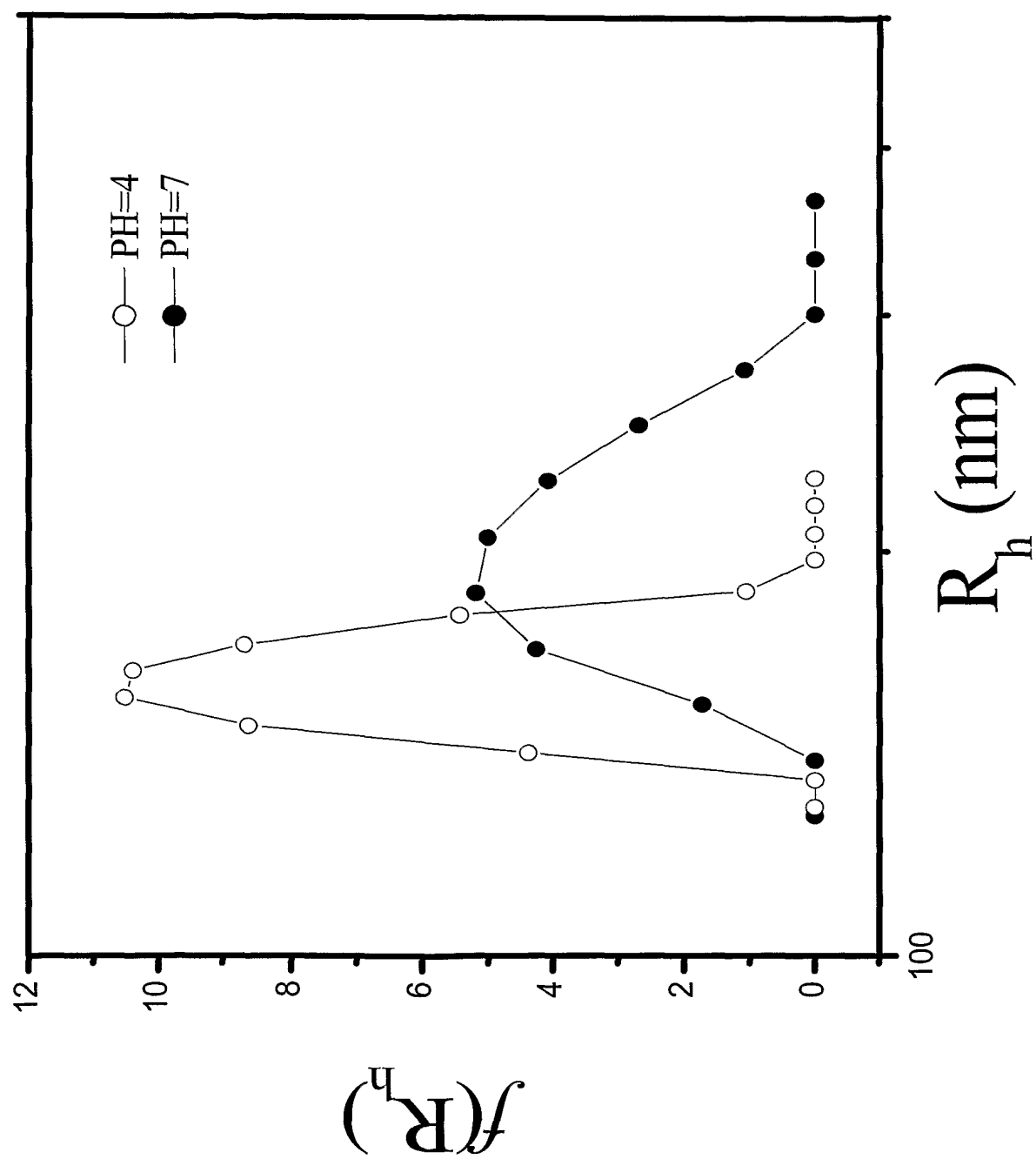


Figure 8



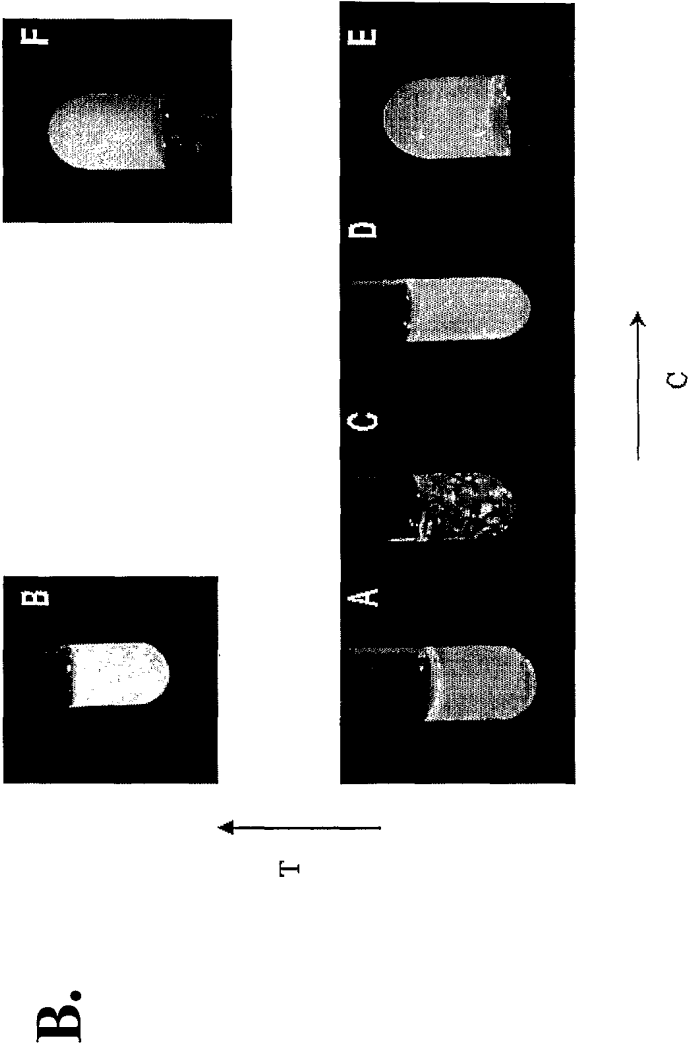
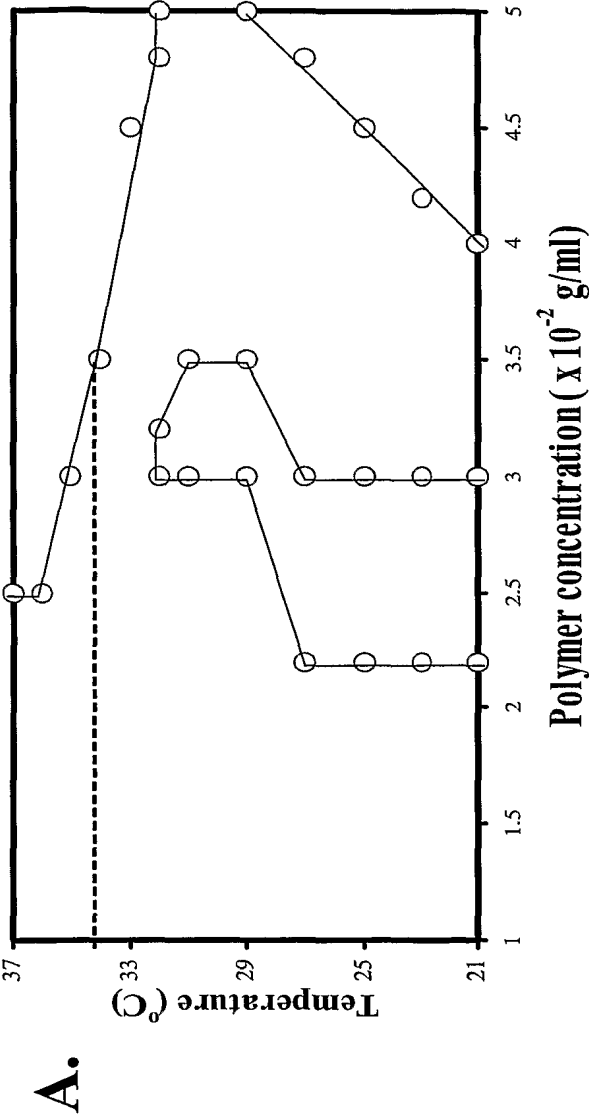


Figure 9

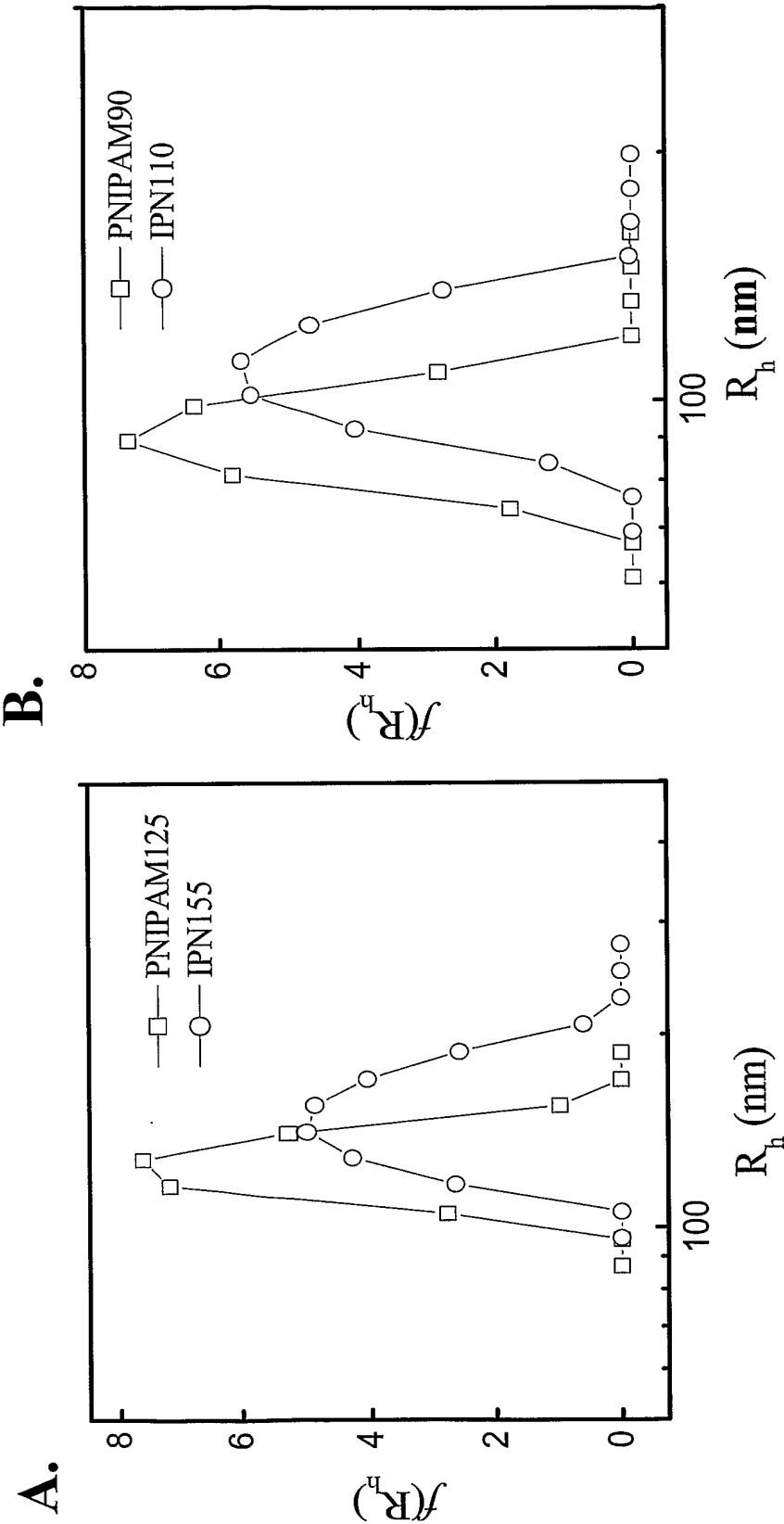


Figure 10

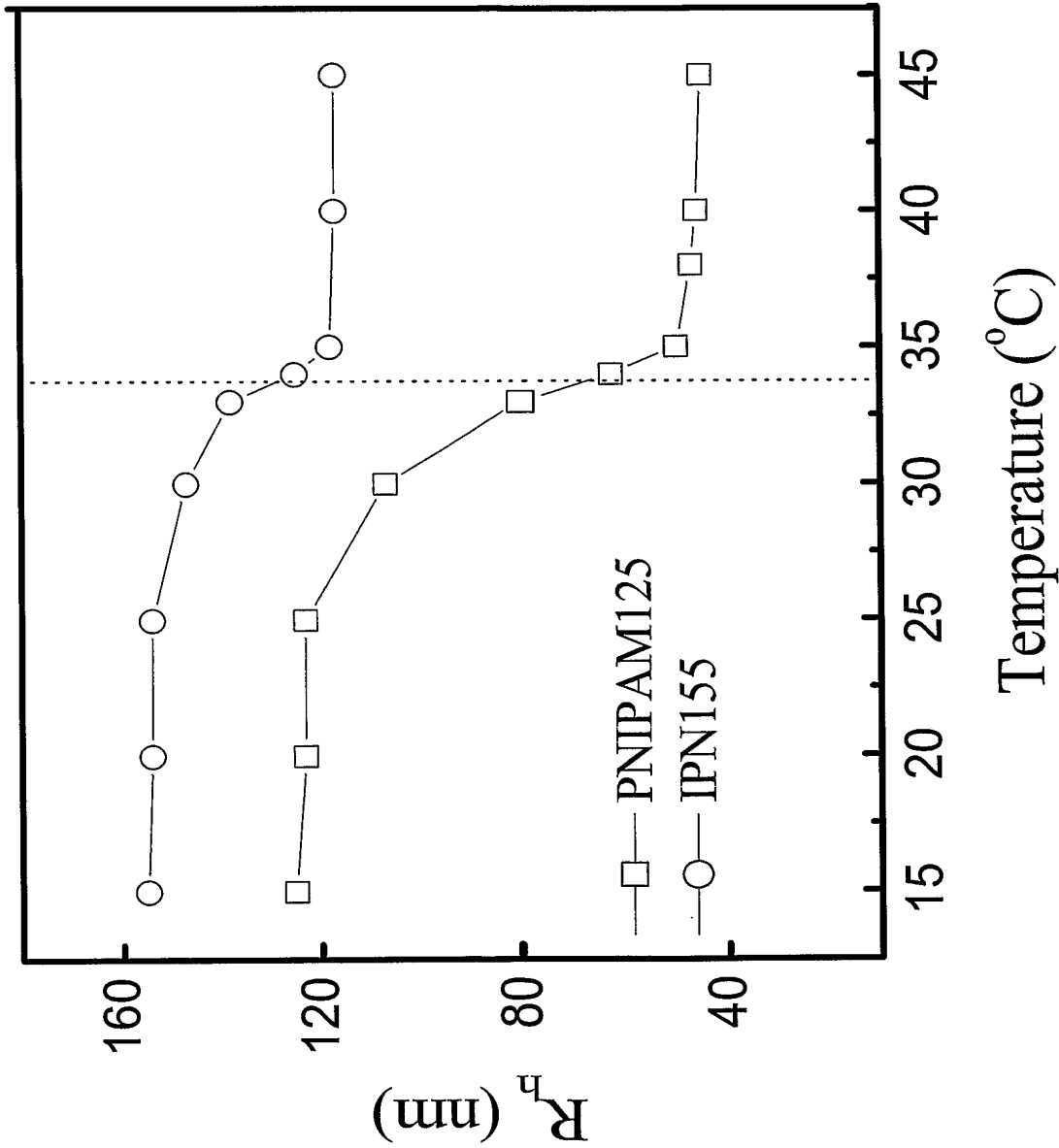


Figure 11

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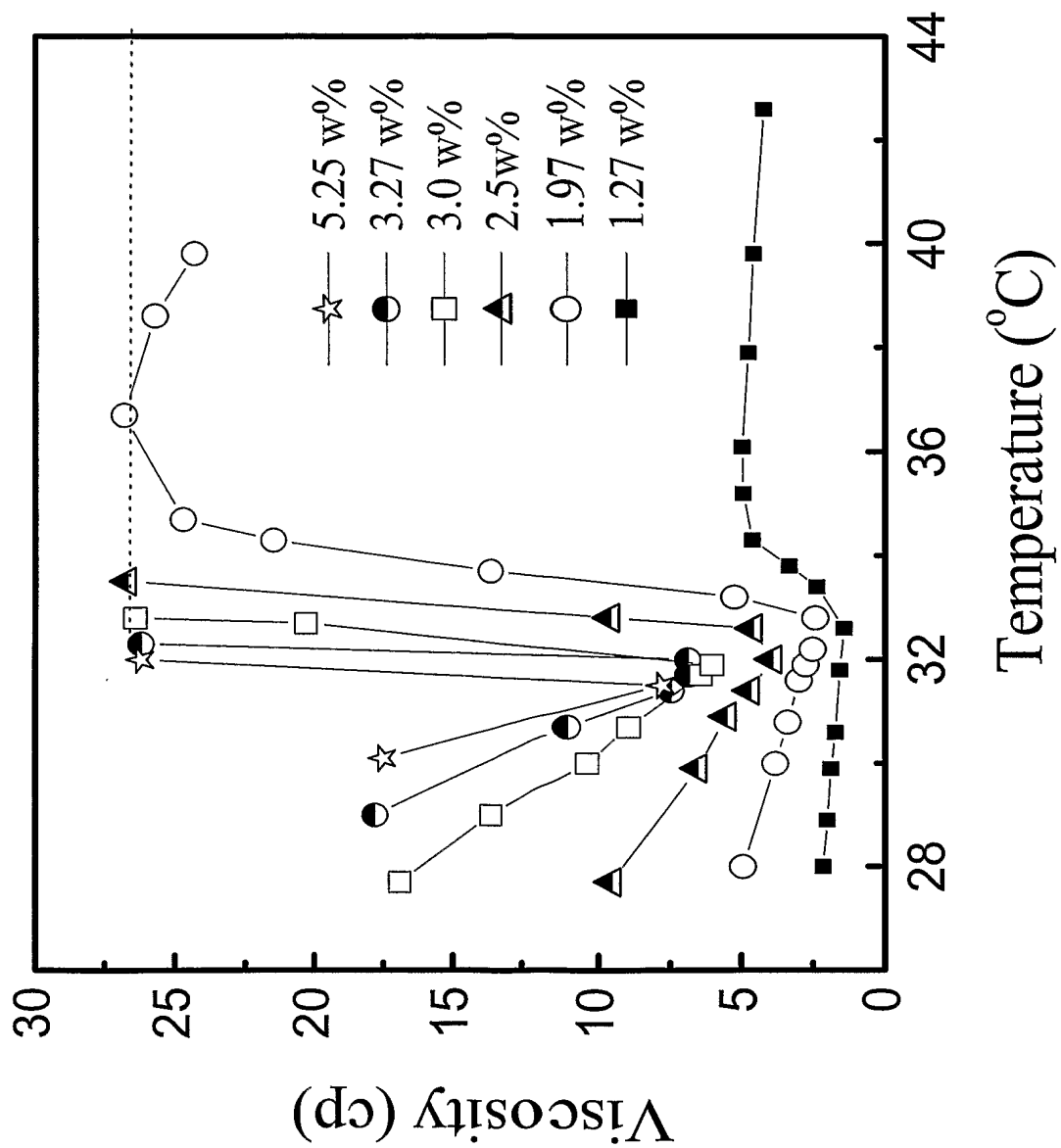


Figure 12

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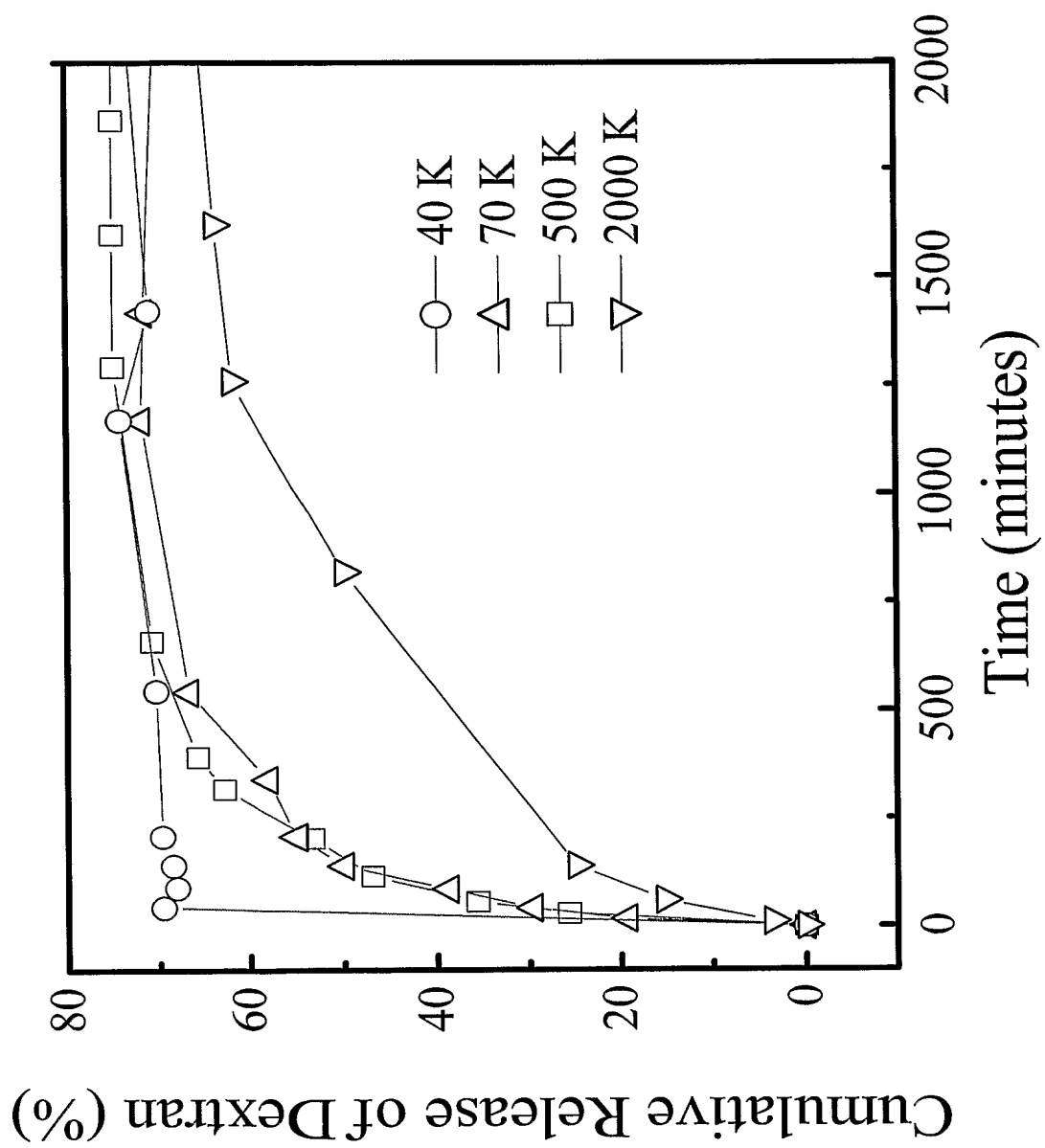


Figure 13

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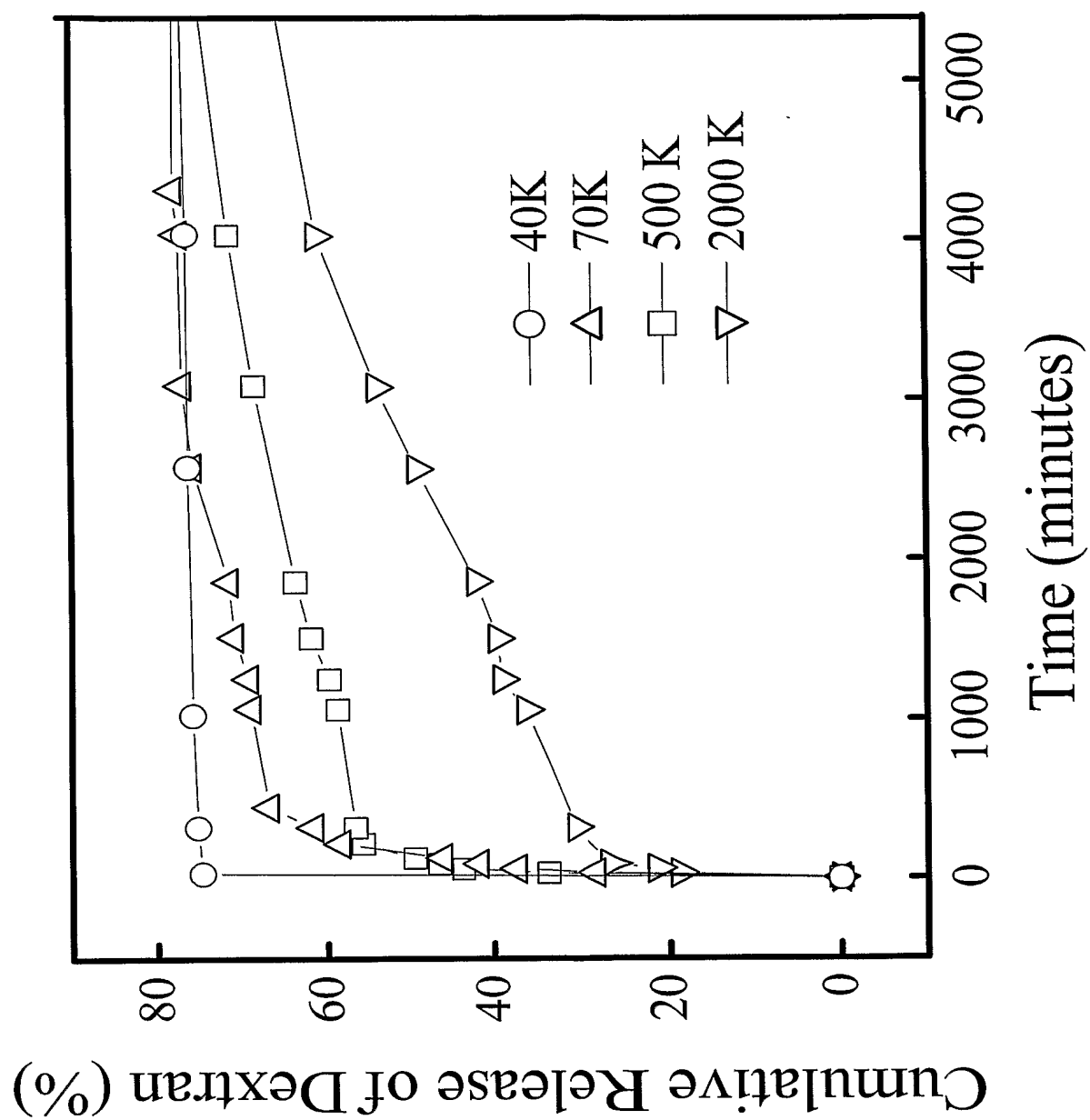


Figure 14

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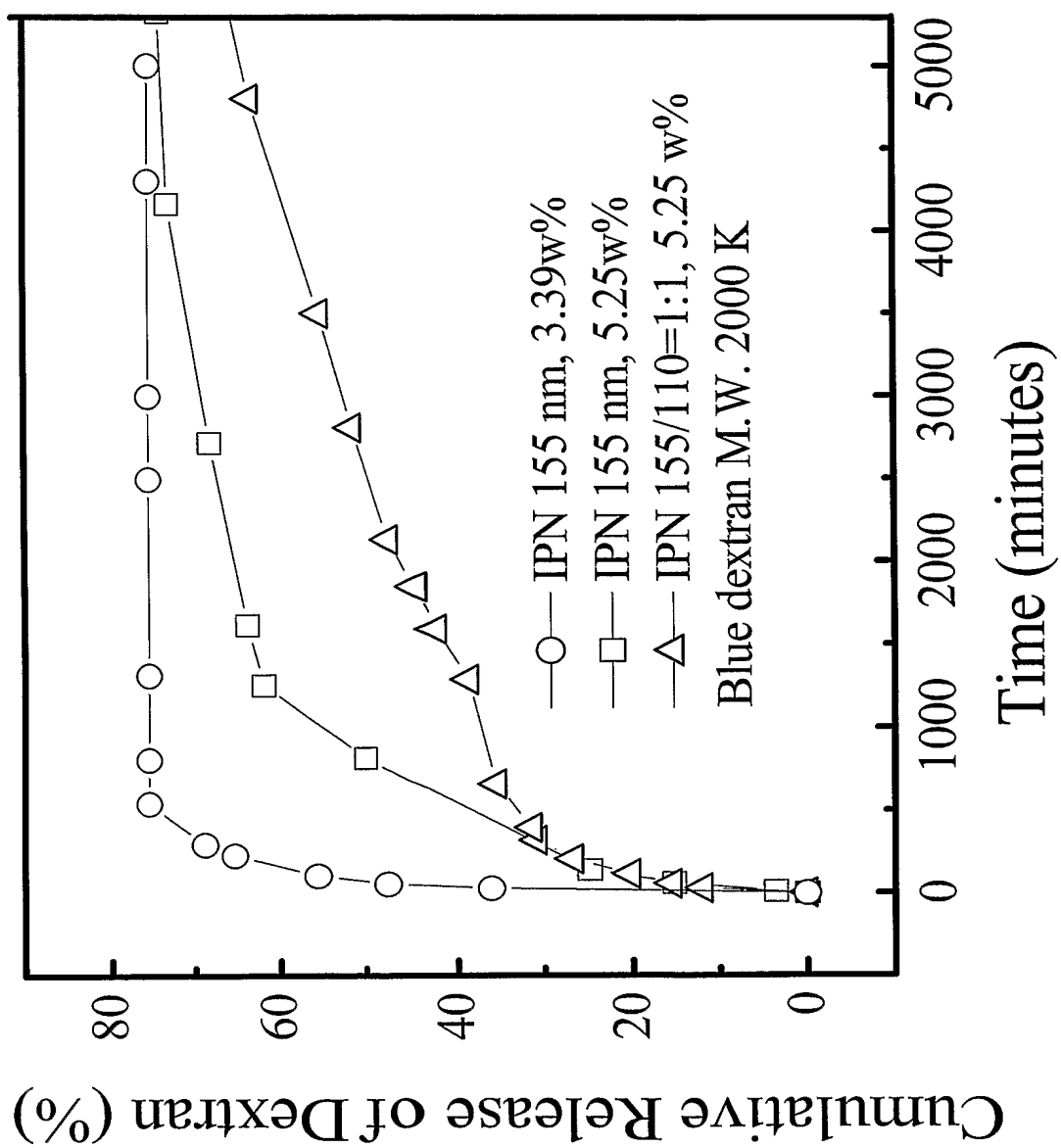


Figure 15

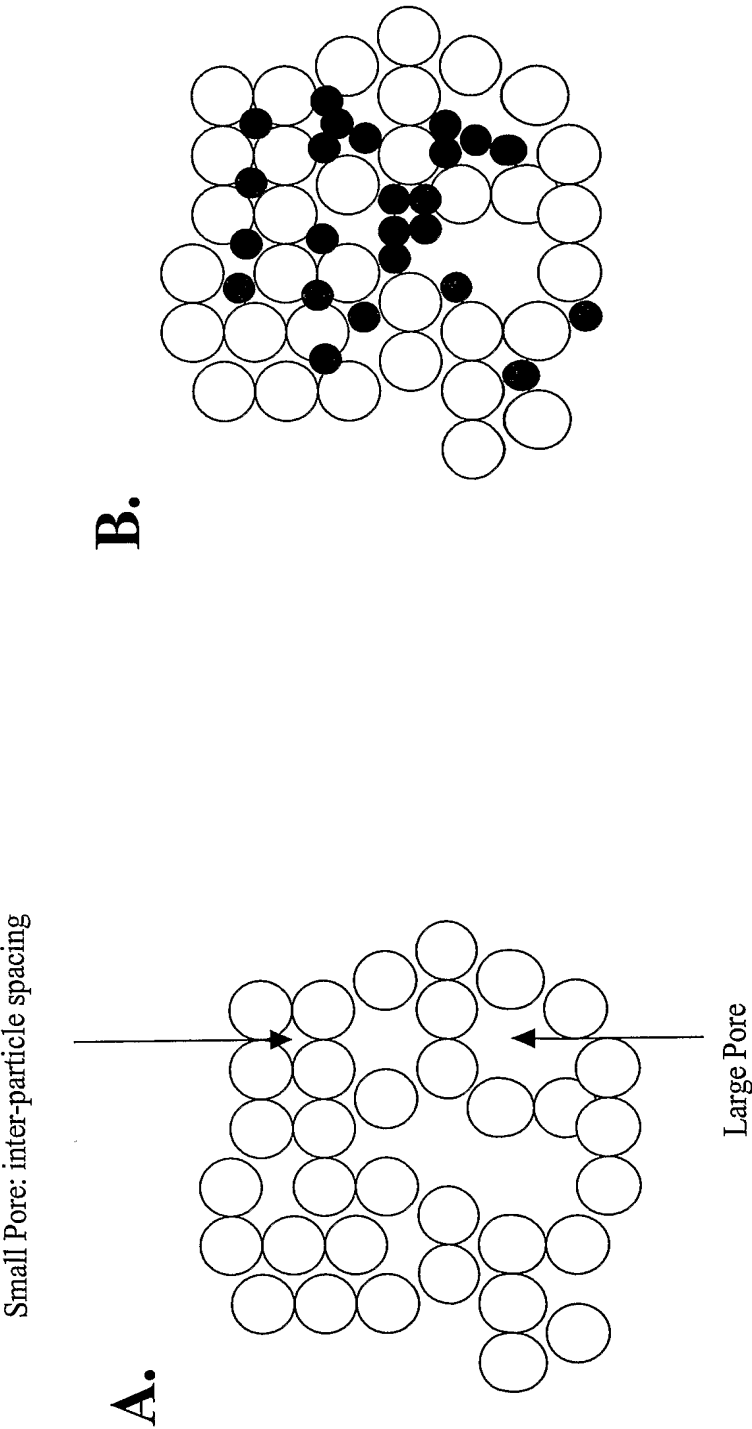


Figure 16



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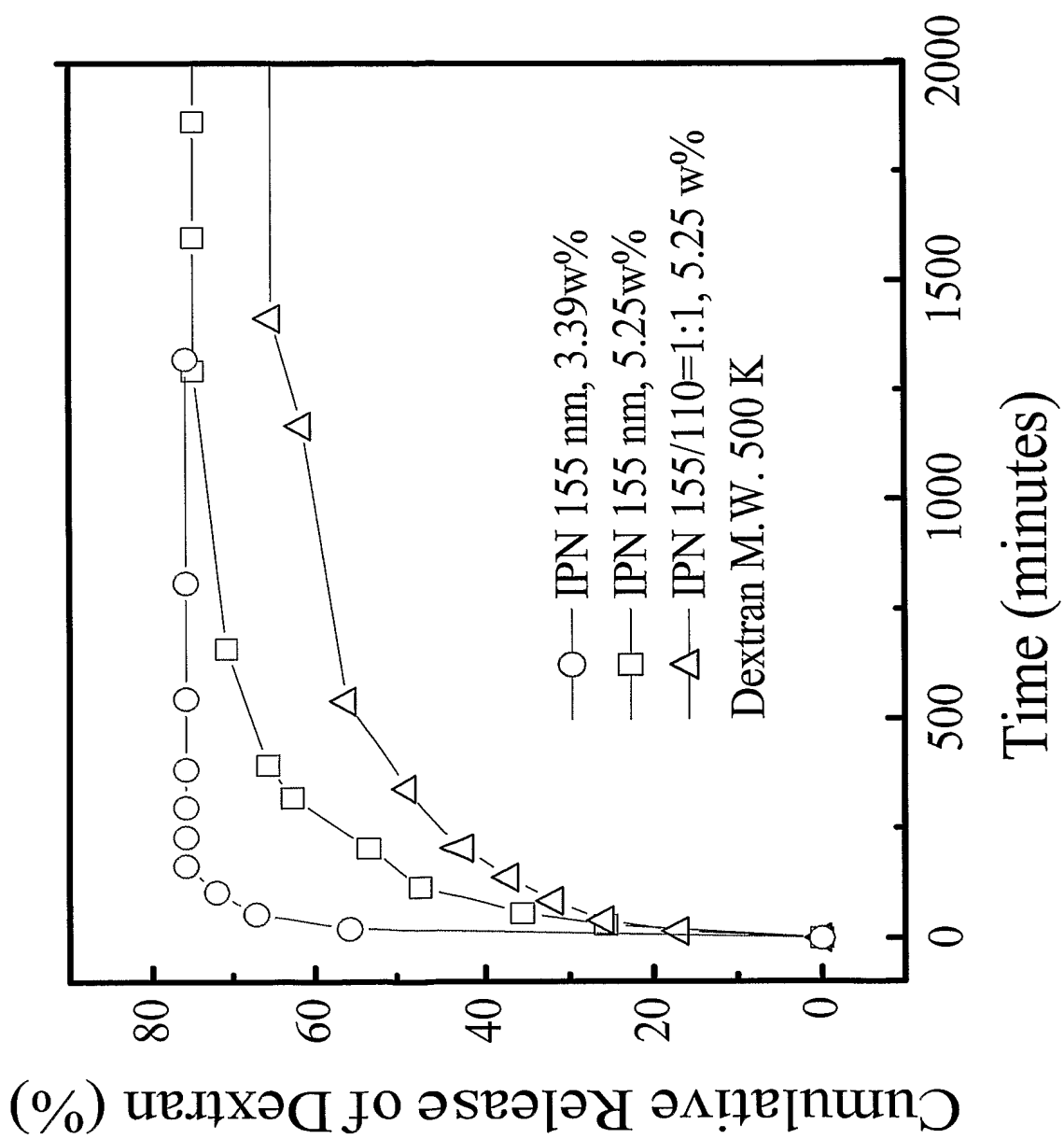


Figure 17

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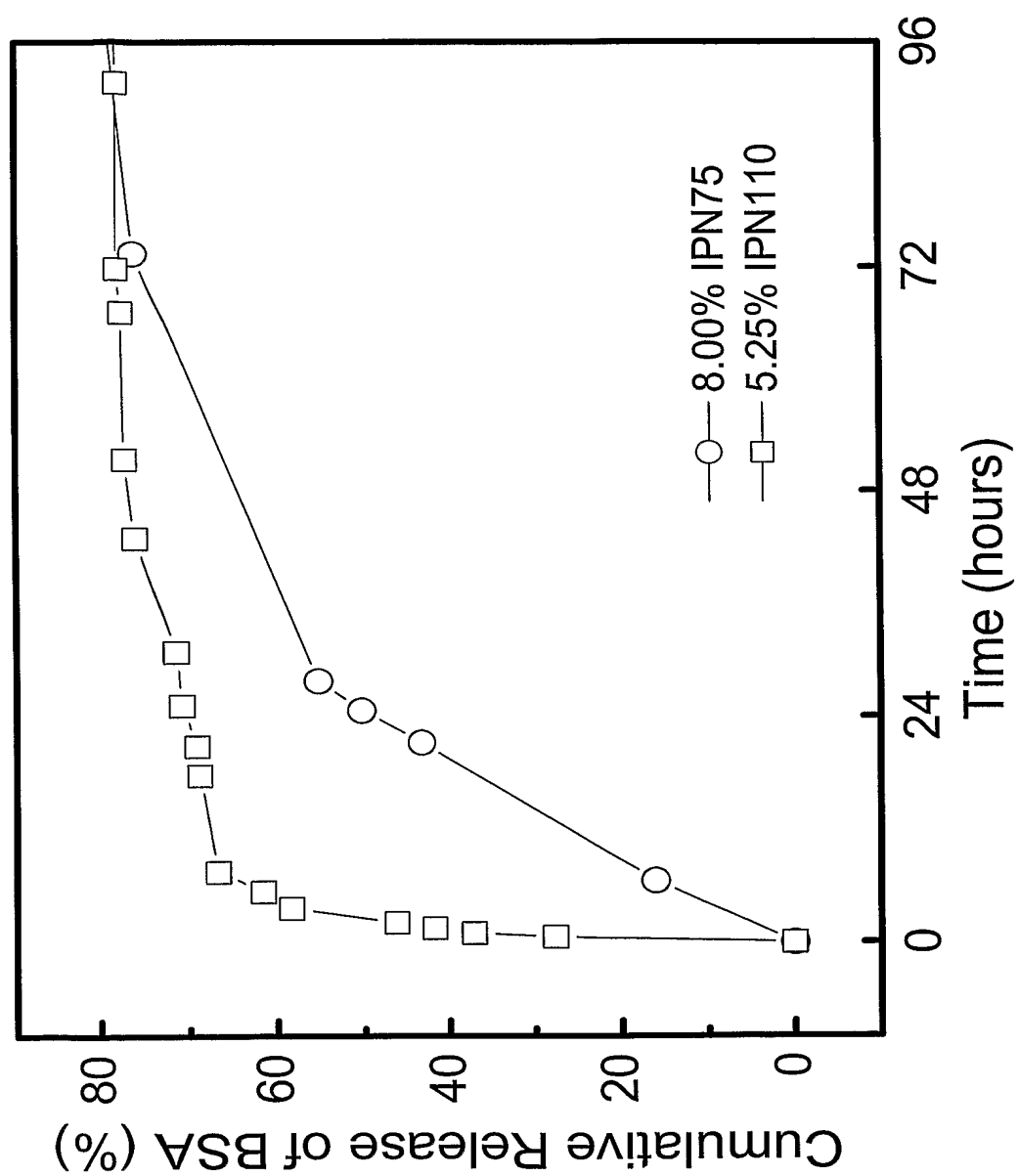


Figure 18

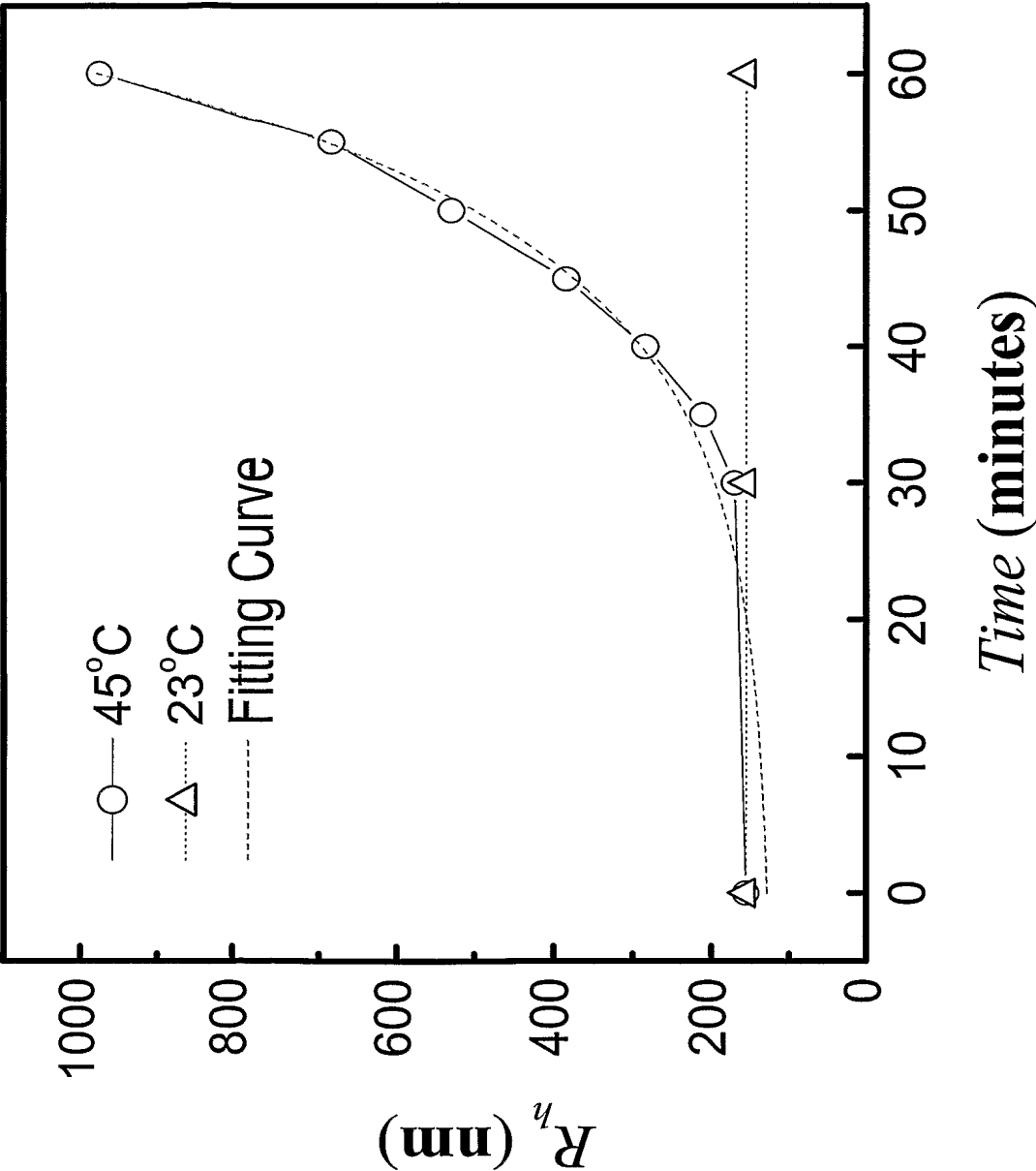


Figure 19

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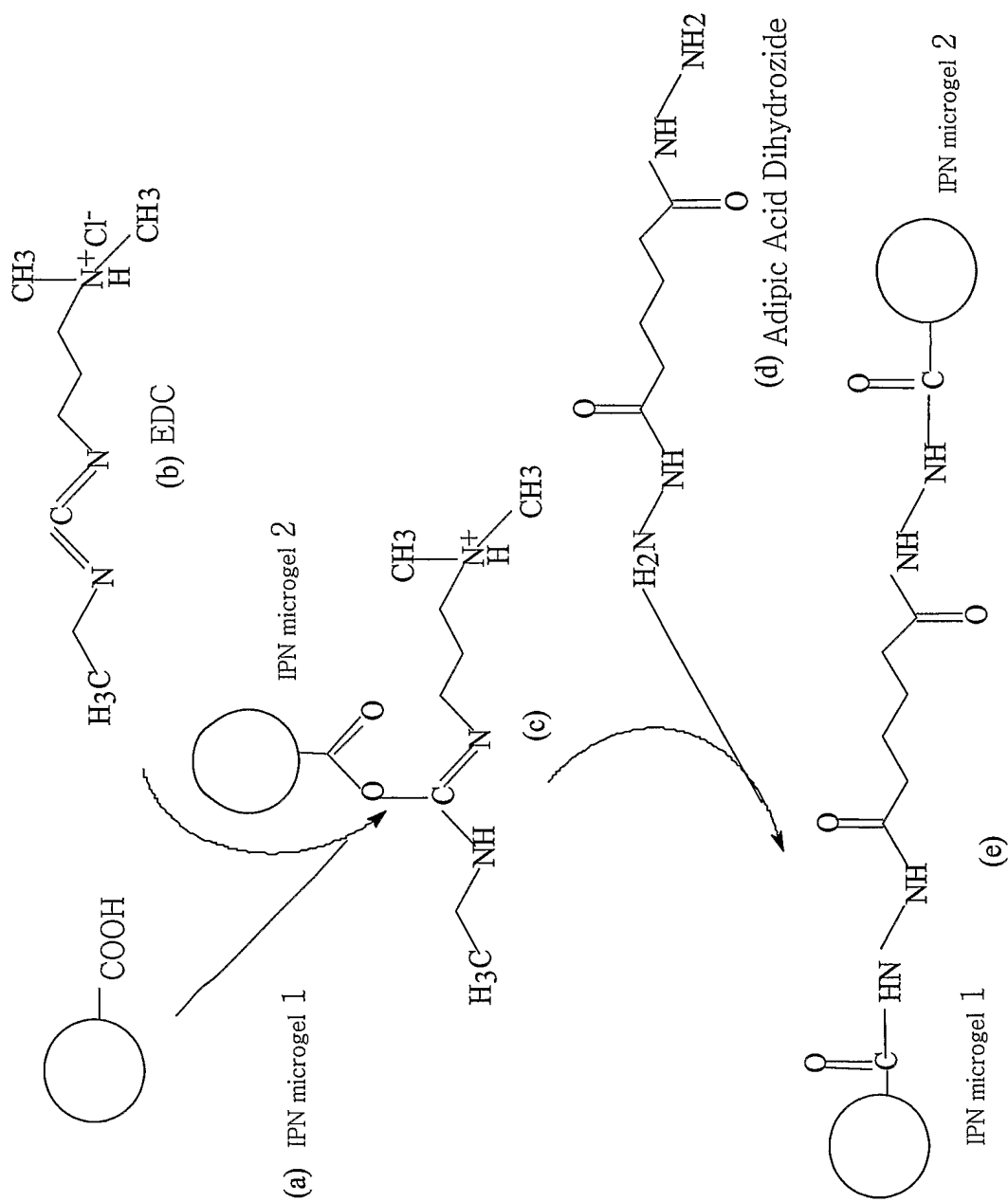


Figure 20

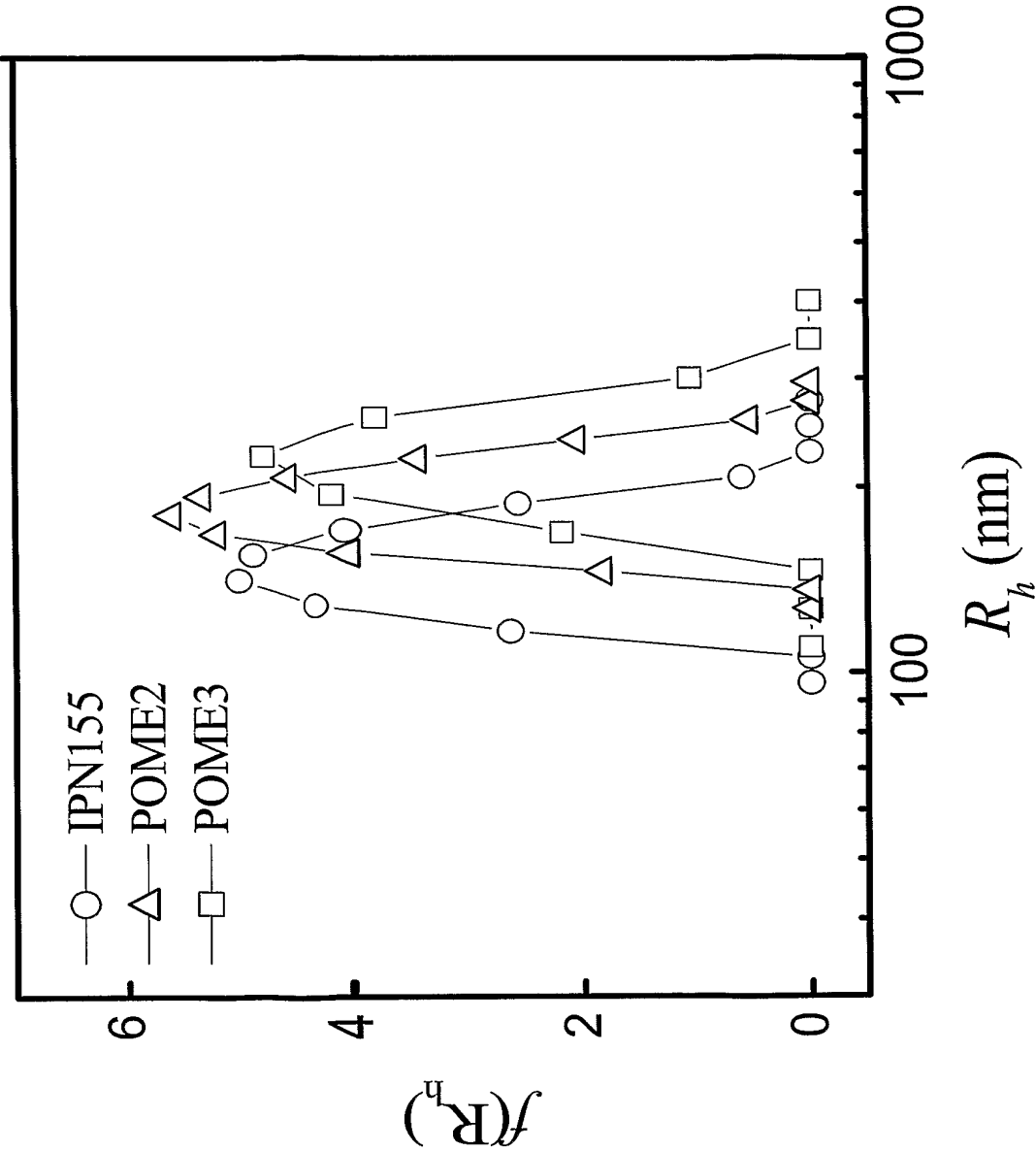


Figure 21

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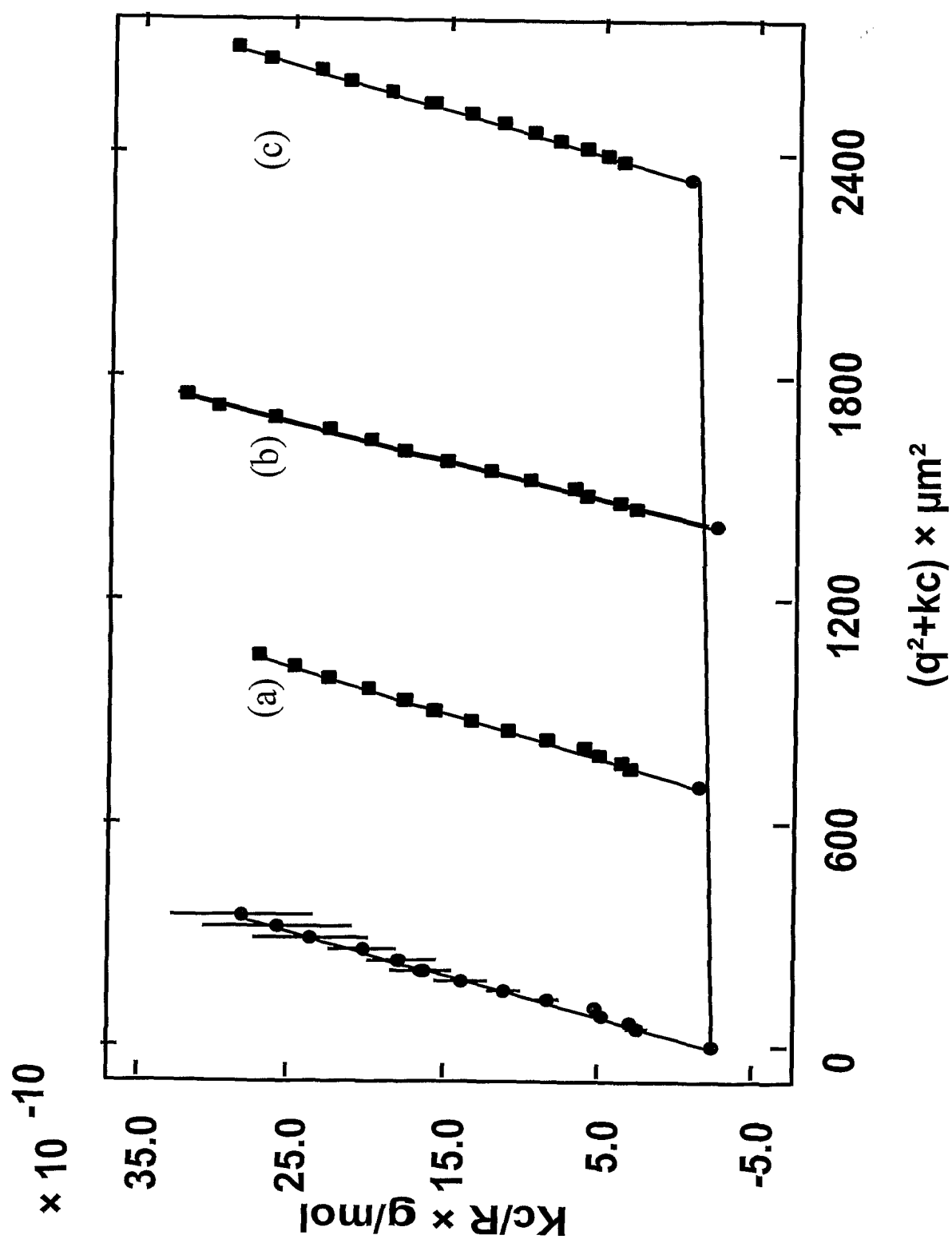


Figure 22

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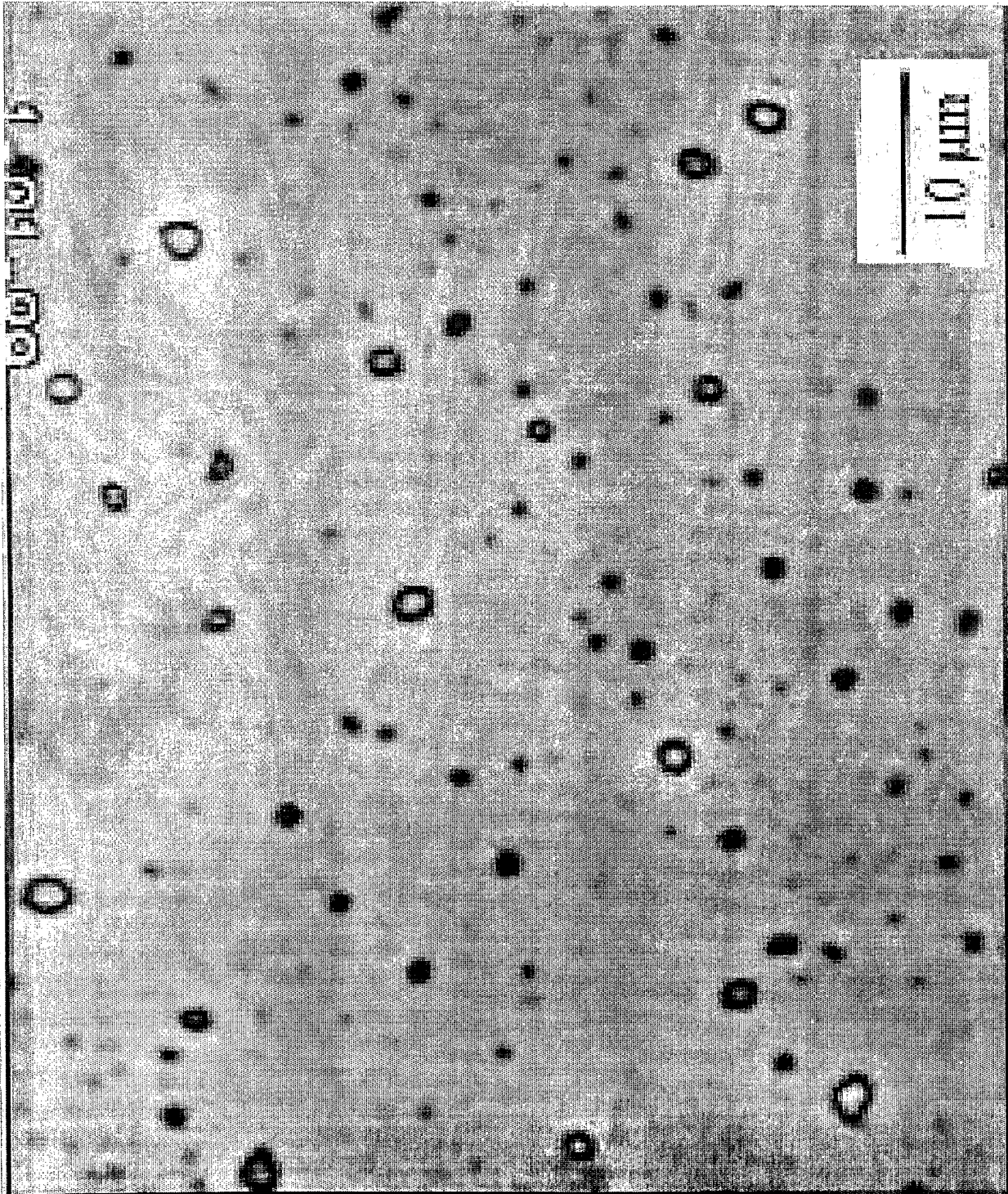


Figure 23

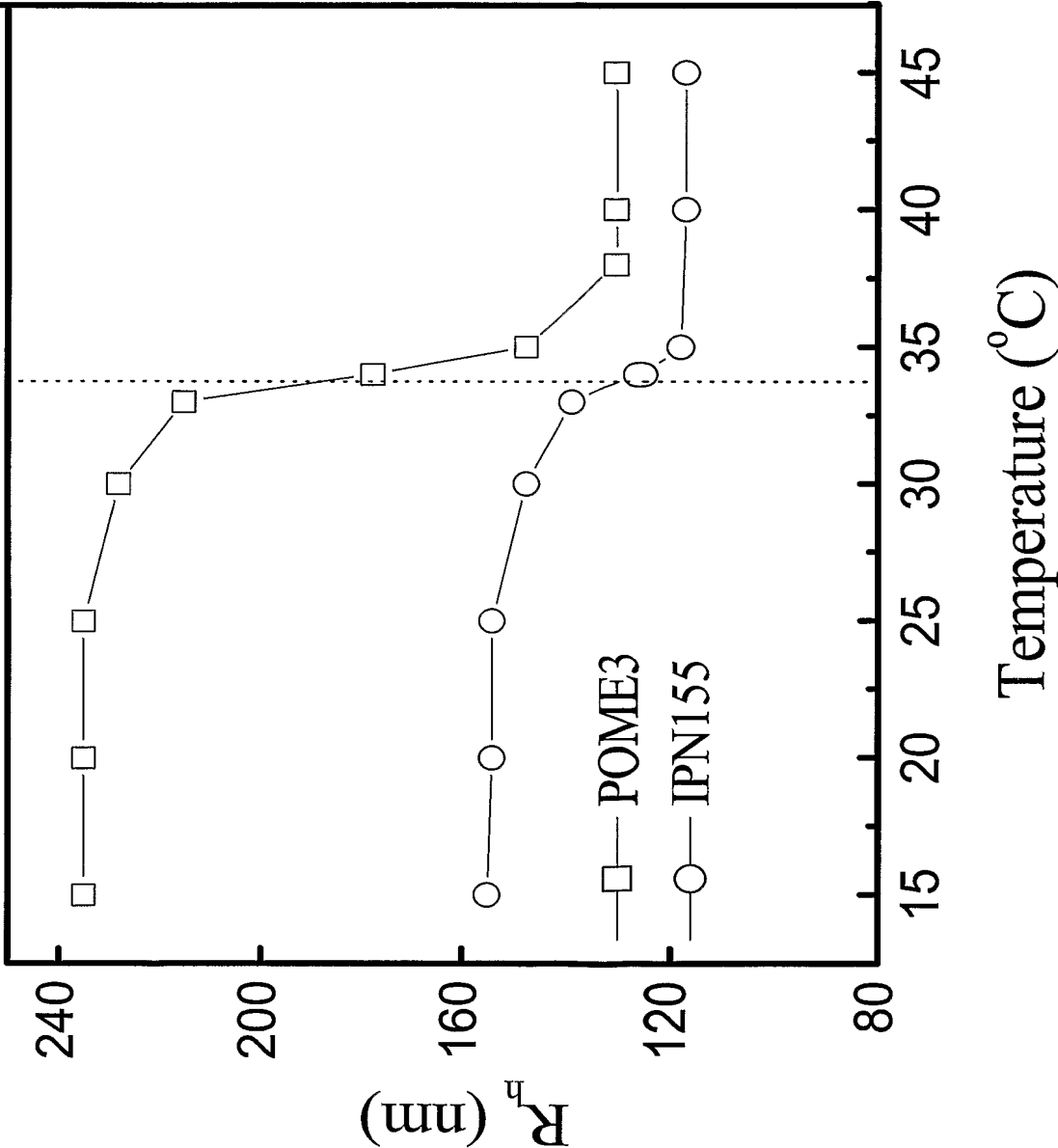


Figure 24



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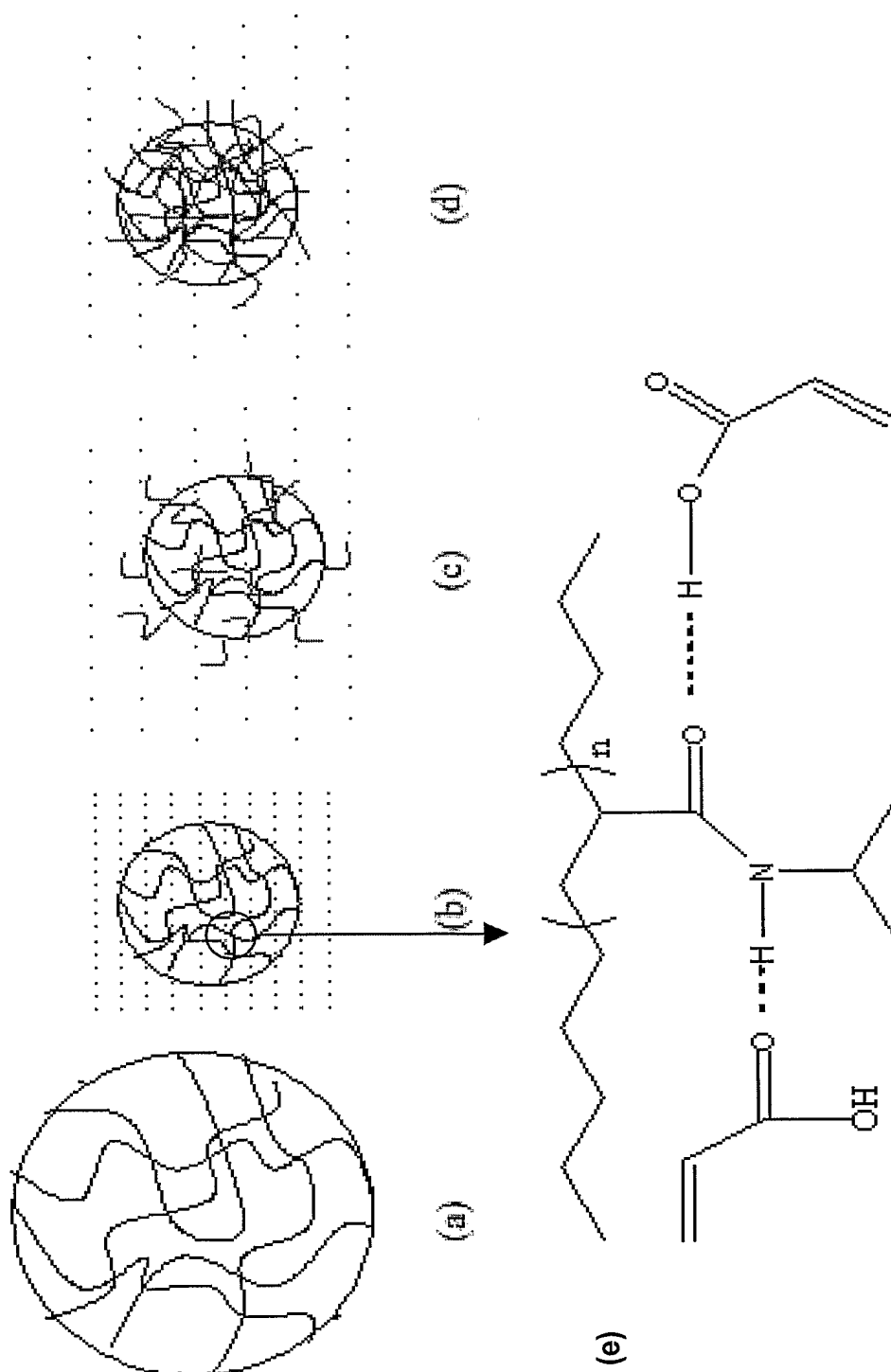


Figure 25

Table 1. Comparison of PNIPA and IPN Nanoparticles

	$R_h$ (nm)	$R_g$ (nm)	$R_g/R_h$ (a.u.)	$A_2$ (mol*cm <sup>3</sup> /g <sup>2</sup> )	Mw (g/mol)	Density(g/cm <sup>3</sup> )	PNIPA:PAA ratio
PNIPA	121	98	0.81	$8.9 \times 10^{-5}$	$8.137 \times 10^7$	$1.82 \times 10^{-2}$	1 : Nothing
IPN	202	143	0.71	$9.5 \times 10^{-5}$	$2.341 \times 10^8$	$1.13 \times 10^{-2}$	1 : 1.88

Table 2. Synthesis conditions for IPN Nanoparticles

$R_h / nm$	Precurs or PNIPA m $R_h / nm$	Reaction temp. / $^{\circ}C$	Reaction time /mins	Precursor PNIPAm PD.I.*	IPN PD.I	PNIPAm:PA A
IPN110 110	90	23	23	1.05	1.08	1 : 0.13
IPN155 155	125	23	23	1.03	1.07	1 : 0.50

\* PD.I stands for Polydispersity Index.

Figure 27

Table 3. Time required for 60% of the loading drugs being released at 37°C

From 5.25% microgel networks	M.W. 40K	M.W. 70K	M.W. 500K	M. W. 2M
IPN155 (minutes)	Less than 30	300	300	1300
IPN110 (minutes)	Less than 30	320	1000	4000
IPN155/IPN110 (1:1) (minutes)	--	--	1000	4600

Figure 28

Table 4 a detailed comparison between Cluster 3 and IPN microgels.

	$R_h$ (nm)	$R_g$ (nm)	$R_g/R_h$ (a.u.)	P.D.I.	Mw (g/mol)	Density(g/cm <sup>3</sup> )	LCST
IPN155	155	110	0.71	1.03	$2.80 \times 10^8$	$1.43 \times 10^{-2}$	33°C
Nanocluster3	235	178	0.75	1.04	$9.30 \times 10^9$	$1.36 \times 10^{-2}$	33°C

Figure 29